AQUATICA

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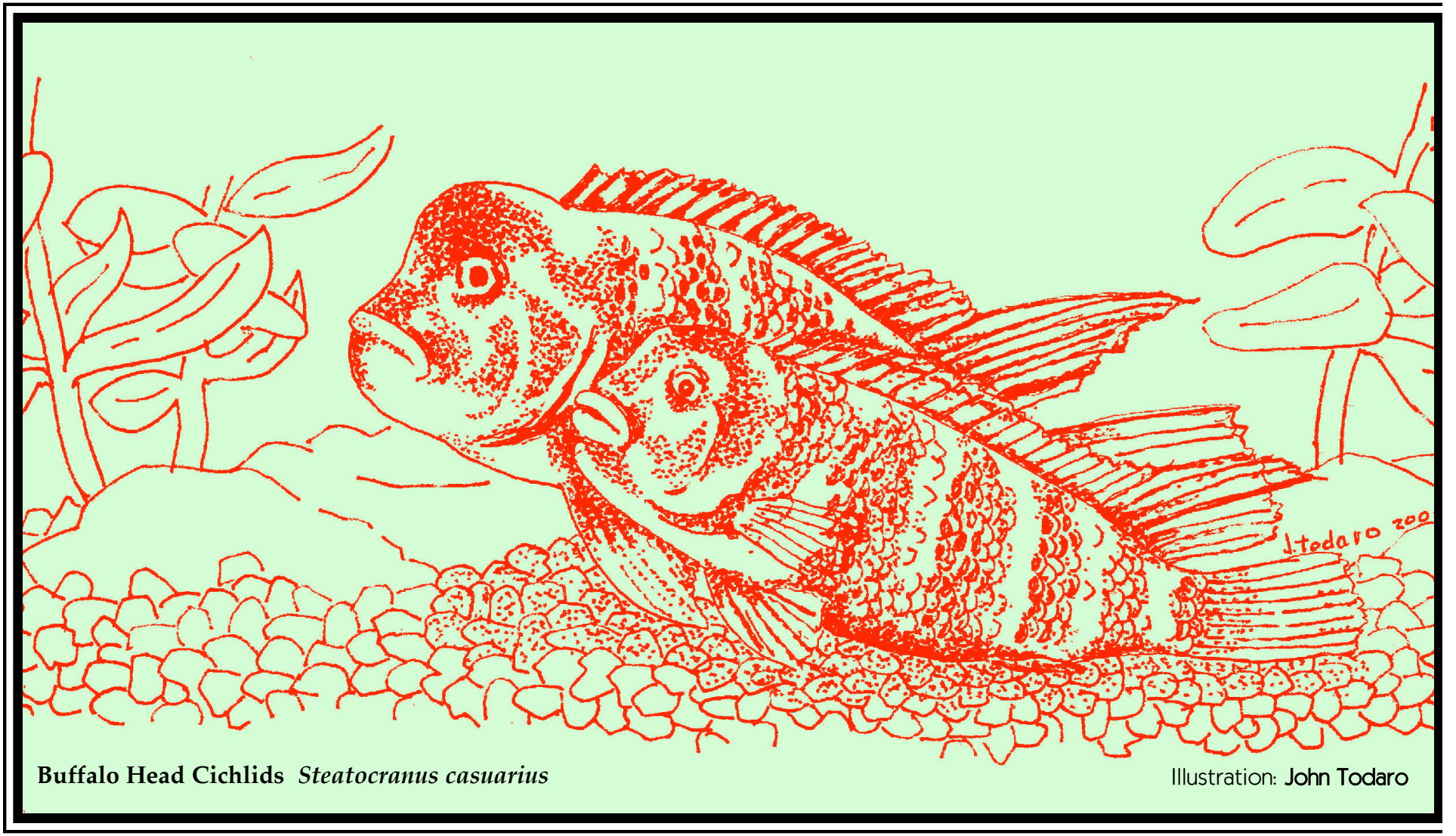

Buffalo Head Cichlids ***Steatocranus casuarius***

Illustration: John Todaro

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AQUATICA STAFF

The **Brooklyn Aquarium Society Inc.** is a non-profit organization 501(c) (3) for people interested in the aquarium hobby and the study of aquatic life. The Society meets the 2nd Friday of each month except July and August at the Education Hall of the New York Aquarium at Coney Island, Surf Avenue at West 8th St., at 7:30 PM.

Meetings are open to visitors. Refreshments are served. Membership is $25 per year family/$20 individual/$15 for students under 14. Send inquiries or membership checks payable to:
Brooklyn Aquarium Society, c/o Membership Chairperson, P.O. Box 290610, Brooklyn, NY 11229-0011.

On occasion, the Brooklyn Aquarium Society uses its mailing list to send notices of interest other than society business to our members.
If you do not wish to have your name used in this manner call **the Hotline** 718 837- 4455 and leave a message.

BROOKLYN AQUARIUM SOCIETY
CALENDAR OF EVENTS
2009-2010

MAY 8 ~ **Spring Auction** ~ Freshwater fish, plants, marine fish, aqua-cultured corals & dry goods auction; including a 55 gal tank & stand • Raffles • Discount aquarium books & sales• Door prizes.
JUN 12 ~ **Meet The Experts** Experts will answer your questions at a Freshwater fish table, Plant table, Marine table and a Live/Frozen foods table. Marine fish, aqua-cultured corals, freshwater fish, plants & dry goods auction • Discount books & sales • Door prizes • Raffles • BAS Elections.

Summer Break July & August

SEPT 11 ~ **Dana Riddle** **Raising Coral Spawn: Can it Be Done?**
• Freshwater & marine fish, aquacultured corals, plants auction • Discount books & sales.
OCT 9 ~ **Fall Giant Auction** • Freshwater fish, plants, marine fish, aqua-cultured corals & dry goods auction • Discount books & sales • Raffles • Door prizes.
NOV 13 ~ **Greg Sullivan** ~ **Building Filter Systems For Fresh & Marine Aquariums** • Freshwater & marine fish, aqua-cultured corals & plants auction • Discount books & sales

DEC 11 ~ **BAS Holiday Party** Members, their families & friends • All you can eat dinner. • Fish Bingo & Prizes • BAS Awards presentation.

2010

JAN 8 ~ **TBA**
• Freshwater & marine fish, aqua-cultured corals & plants auction • Discount books & sales
FEB 12 ~ **TBA**
• Freshwater & marine fish, aqua-cultured corals & plants auction • Discount books & sales
Mar 12 ~ **TBA**
• Freshwater & marine fish, aqua-cultured corals & plants auction • Discount books & sales
APR 9 ~ **TBA**
• Freshwater & marine fish, aqua-cultured corals & plants auction • Discount books & sales
MAY 13 ~ **Spring Auction** • Freshwater fish, plants, marine fish, aqua-cultured corals & dry goods auction; including a 55 gal tank & stand • Raffles • Discount aquarium books & sales • Door prizes.

All Events held the 2nd Friday of the Month at 7:30pm at the Education Hall of the
New York Aquarium ~ Surf Avenue & West 8th Street ~ Brooklyn, NY (unless stated)
We request a $5 Donation for non-members, good towards membership the night of the event only.

FREE REFRESHMENTS AND FREE PARKING AT EVERY MEETING - UNLESS STATED

NOTICE TO ALL MEMBERS

A motion was made, seconded and passed at the March board meeting (3/7/08) that membership cards be made up and handed out the night a person joins the BAS. If you join or renew by mail you must come to the next general meeting to get your card. Publications will still be sent by mail.

Web memberships do not get a card, and only get publications that may be on-line. The cost of mailing has gone up and this is a cost-saving measure.

Robert Price – BAS

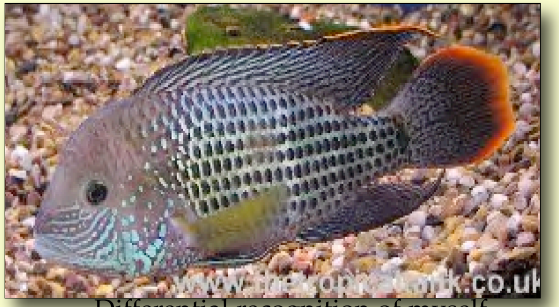
Photo: Sean Evens thetropicaltank.co.uk

Digging, Playing, and Extreme Aggression in Green Terror Cichlid Breeding Pairs

Cichlid pairs grow on you. You become aware of it every time you need a bigger tank, and over the years, every time you study their peculiar talents, which they seldom reveal. In this short article, I shall present and speculate about some of the more extreme behaviors of a species which I have had the opportunity to see breeding in a large aquarium, the Green Terror Cichlid, *Aequidens rivlatus*.

I purchased my first certified breeding pair of Green Terrors from a venerable old gentleman in Chinatown who I knew for forty years and since his departure from this world I will miss.

He kept a divider between the breeding pair. I gave them the run of a 55 gallon tank. They immediately settled in and started to eat heartily. (The male has now approached record size for this species.) The tank was sparsely planted and they denuded what vegetation I had in it in the first week. This behavior is common, and thought by many to be "clearing the way" so they could expose any potential predators. The substrate in the tank was natural dark colored gravel. They surveyed every nook and cranny of the tank for the first week. The main feature of the tank was a larger round rock fossil, which I had placed standing up and slightly skewed from the back of the tank. It looked like a wheel on Fred Flintstone's car.



Differential recognition of myself ensued rather rapidly. They know I feed them and that a female companion of mine pays excessive attention to them. They quickly became accustomed to us and I like to think they became our friends.

Dare I assume they act on emotion and not on instinct? Yes, we were the only two people they didn't seem to avoid, and go about their business of rearranging the landscape in the tank and eating right in front of us. To this day, if anyone else gets too close to the tank, they hide behind the stone and won't come out until the strangers move back from the tank.

After the first two months, they established a much more patterned dig. They cleared out all the gravel behind the stone and put most of it in front, thus constructing their typical anti-predator mound and narrow homesite for which these cichlids are famous. Then one day they did something that crossed the line - they each picked up one of the larger round pebbles and deposited them on the very top of the round stone. I was stultified, having been taught by experts that lower vertebrates did not exhibit play behavior. Thus, I always considered their almost orchestrated dancing together and seemingly inexplicable digging as instinctive behavior, but this was heresy to everything I had been taught.

In the past three years, they have done this same thing about two dozen times, and even replaced precariously balanced

Digging, Playing, and Extreme Aggression in Green Terror Cichlid Breeding Pairs

pebbles if and when they fell off the top of the stone.

During this period, they've also developed the habit of coming to the surface of the water and wagging their tails, like little hounds whenever they were hungry or being watched by either of us.

Before they had their first brood, I was able to observe their shifts in behavior: some days coming to the surface and wagging their tails and when fed, gorging themselves; on other days they spend their time exposing the tank's bottom, spitting pebbles for hours and creating corner pyramids.

Other days, their color would become exceedingly bright and they would "dance" in semicircles in front of the stone, only taking refuge behind it to rest, then come out to resume their gyrations.

Since my Green Terrors do not eat at the bottom unless they're very hungry, but often take as much as two hours to balance these gravel "ornaments" on top of their rock home, I do not know why they do this. I can only assume they have their reasons for this behavior, unknown to us. Or maybe they actually enjoy arranging pebbles on top of the rock?

To my knowledge, the planned spousal pebble pairing has never been reported in other cichlids. This may be an artifact of being kept in an artificial habitat, or something that has been thought out and made a necessary part of their pair bonding behavior.

My pair had bred two out of the last three years I've had them.

Breeding takes place after they have cleaned and polished a flat piece of clam shell which I placed in the tank. They moved it to the back of their stone cave, and laid and fertilized the eggs on the shell behind the stone. They generally lay about 150 eggs, and the hatch rate I was able to observe exceeded about 99%, one egg having fungused.

They've only bred when the two spousal pebbles are perched on the top of the round stone. Their parental behavior is otherwise fairly typical of most South American cichlid accounts, except considering that over half of most cichlid nests in the wild are often invaded or destroyed. Therefore they work double time to protect the eggs and fry viciously 24 hours a day, often in shifts, for about a month, after which time the parents lose interest and ignore the babies, or on occasion may gobble up a few of their young.

They've never allowed me access to their nests, eggs, or fry, and will bite my fingers and the net assiduously over and over until I remove them from the tank.

The parents and fry are both fairly unparticular eaters, although both show a preference for artificial crabmeat and shrimp over other items. I keep these fish at pH 6.5 and at a temperature of 80˚ F degrees year round.

Heather Burke - Jr. Member SWAMAS
(Southwestern Michigan Aquarium Society)

Picture: E. Naus, AquaWorld

The Spawning of a Mouth Brooding Betta *Betta edithae*

My adventure with mouth-brooding Bettas began December 2007 at the annual SWMAS awards party. Arguably, my adventure has yet to end.

Deciding to try my hand with a new fish (as I periodically do), I started bidding at the silent auction. There were some real treats there, among them two or three species of mouth brooding Bettas. I had never spent much on fish in the past, so I refused to bid on the pair that were already going for $26 each. Lo and behold, there was a pair in my price range, albeit much more expensive than cheap little me was usually willing to spend. Hey, it was the holidays; I could indulge myself just once! The pair I eyed was Betta edithae, a rather brownish and dull species. Still their traits were fascinating, and I never had mouth brooding "anything." I brought them home with me at the fair investment of $14. I immediately set out to breed those fish and get my money's worth!

I cleared out a whole 5 1/2 gallon aquarium for my new Bettas, and I had a few dither fish to lure them out (Vietnamese White Clouds). They had a bad habit of doing nothing but hiding, despite my efforts. I had Najas grass, duckweed, Java moss and play logs all over, but I still barely saw them. I didn't use a heater, as the room temperature was just fine for this Betta. The pH was close to neutral. The filter was a little box filter with a light flow of bubbles.

When it came to feeding time, I had the most difficulty. If I weren't sitting perfectly still in front of their aquarium, the two refused to poke their heads out of hiding. If I wanted them to eat flakes, I would almost have to leave the room. I fed them blackworms and frozen bloodworms until they eventually took Betta Flakes. They never liked pellets, however. Since my fishroom is my bedroom, I could watch them from my bed with one lamp on in the room, as the two rose to eat the flakes I had sprinkled before lights out. I've found these fish to be most actively seeking food at dusk, only making exceptions for the most enticing foods. It makes for an interesting display to squirt blackworms into the tank and watch as these Bettas pounce on them.

I discovered their sexual dimorphism pretty quick. Not only is the male a little bigger, he also has a bigger head and more ornate colors. When in breeding mode, the female gets very distinct brown horizontal stripes all throughout her body. My pair began spawning with gusto at the size I bought them (approximately three inches). They spawned every three weeks, in the 5 1/2 gallon aquarium. The white clouds didn't even bother them. I caught the first spawning back in January of 2008, and documented the whole sequence

The male wraps himself around the female and squeezes out 5 to 10 eggs, which become fertilized simultaneously.

The Spawning of a Mouth Brooding Betta *Betta edithae*

through digital photographs. I kept snapping pictures, and the fish kept doing their thing, which surprised me!

I noticed this happening when I checked up on the tank to find the male with a loaded mouth. His gills were starting to turn red from the
burden of so many eggs. The male and female stuck together like a true couple, cooperating entirely. There were a few empty embraces (spawning is similar to most Anabantoids) before the bounty of eggs.

The male wraps himself around the female and squeezes out 5 to 10 eggs, which become fertilized simultaneously. For mouth brooders, the female recovers first from the embrace, and collects the eggs in her mouth that have conveniently landed on the male's long anal fin (which has a nice blue trim). When the male recovers, he takes to chasing the female a little, encouraging her to spit the eggs to him. She fumbles for a while, spitting out eggs and then catching them again. It becomes the male's job to swipe the spat eggs up before the female decides she wants to keep them for herself. The female continues spitting eggs to the male until all from the last embrace are in his mouth (which bulges noticeably). After a brief pause, the process starts all over again.

For almost every spawn I have witnessed, the male becomes overly burdened with the eggs and swallows them after no more than two days. I expressed my frustration to **Darrell** (he wrote article about stripping eggs).

I didn't give up hope that the male would do his job as a father and keep the eggs to term someday. Going into the summer of '08, I had to relocate the pair of *Betta edithae*. The spawning had become less and less frequent, and each time the male swallowed the entire spawn. I thought it was inevitable.

The pair's new home became an acrylic 3-gallon tank I acquired from a past teacher of mine, with a purple top. It wasn't anything fancy, but it did seem to suit them. I threw in the play logs and Najas grass and set up a different box filter. Otherwise, I did nothing special for them. In fact, they didn't do anything special for me again until I had almost completely ignored them, save for feeding them blackworms whenever I had them.

In early June, the same day the large storms rolled in and school let out, I poked around the little aquarium to check on the pair; I hardly ever saw them. It was June 6th, 2008 when I discovered Adonis (the male) with a mouthful of eggs. Thinking things would go on as had been the routine, I removed the female anyway, and let him be. (I checked him every hour discreetly).

Strangely, his mouth was no longer bulging quite as much as it had been in past

The Spawning of a Mouth Brooding Betta *Betta edithae*

spawns. He looked like he still had the eggs, and I knew it was finally happening. He finally was on the right track. I kept thinking the due date would be in two weeks; I marked the calendar. Three weeks later, the first fry emerged. I caught the one fry and put it in a styrofoam cup. A few days passed; and even as I expected more fry to come out, I didn't see any fry in his mouth. Still thoughts crept into my head that he might have swallowed them, or some other complication might rear its ugly head.

When I couldn't stand worrying a second longer, I put on a glove, took off the top of the aquarium, got out a net, and prepared to make Adonis spit out the fry. I knew they must be fully developed at that point.

Into the net he went and with my gloved hand I held him gently, pressing on his chin. It took only one shot and out popped nearly a hundred fry! They scattered all over the aquarium, hiding in the gravel and everywhere they could fit. I was so excited! It couldn't have happened more smoothly. I moved the male to a specimen container and proceeded to collect the fry with a fine mesh net, placing them in styro foam cups and counting them as I went. I didn't want to leave them in the aquarium because it had become infested with hydra. I didn't want to lose any fry but, unfortunately, they did dwindle on their own.

Each little bundle of joy was almost the size of a newborn guppy (a little smaller and skinnier). I collected over 80 fry, and couldn't keep count after that. They were all moved to a three gallon bowl. However, they moved so slowly, that many of them got stuck in the sponge/box filter. I fed them microworms and baby brine shrimp every day, but still many died either from over or under consumption, I assume. I finally tore the bowl down after a month and in July I set them up in a newly converted 29-gallon fry tank where I kept the temperature at a constant 78° degrees, and had plenty of plants for them to hide among. The eight fry that survived are doing great now, but I don't have enough fry for BAP (Breed Award Points) so that means...The parents must be bred again!

This adventure is not over yet and probably never wil be, I think I'm hooked on mouth brooding Bettas after this experience. This species in particular is a great peaceful fish with interesting behavior. I got everything I wanted in a fish when I took a pair of *Betta edithae* home.

William Berg - Sweden, for aquaticcommunity.com
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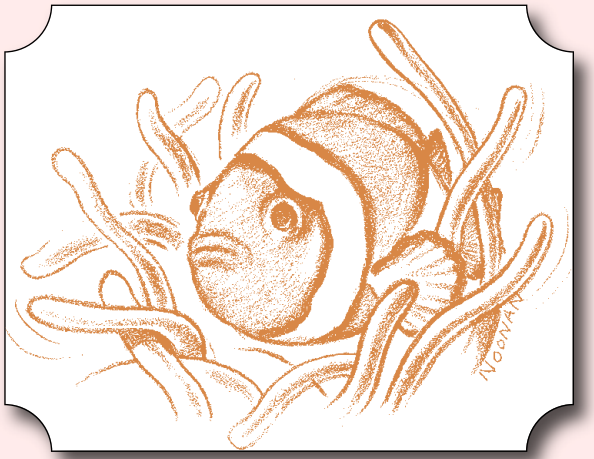
BREEDING CLOWNFISH

A short description



Thanks to Disney's Motion Picture 'Finding Nemo,' almost everybody is familiar with clownfish.

Clownfish, or Anemonefishes, from the family *Pomacentridae*, are one of the easiest tropical marine aquarium fish to breed. Clownfish regularly lay eggs in aquariums. They have quite large eggs and larvae, and since the larvae easily eat cultured live foods, raising them is somewhat simpler than it is with many other marine species.

You need to get a pair if you want to breed clownfish, and that's quite interesting - believe it or not, clownfish are all born as males! When they are adults, the largest and the most dominant fish of the group will undergo a sex change and become a female. The second largest usually becomes the breeding male, while all the other fish remain juveniles and gender-neutral. If the breeding female disappears, the breeding male will change to a female, and so on. Buying an established pair may be a reasonable way to go, but it is often better to have a group of juveniles growing up together. If you choose to buy a pair you should look for a pair that goes around together. Sometimes you can be lucky enough to get a pair already spawning. Anyhow, establishing an adult pair can be a little tricky; and you need to keep your eyes on them to make sure that the female doesn't kill the male.

The next thing is to set up the tank. The tank should be large enough, approximately 200 liters for the breeding pair. It is better to keep a pair alone in an aquarium when trying to spawn clownfish.

The aquarium should be furnished with a nice anemone, a few live rocks and other rocky substances with a vertical surface, a layer of coral sand on the bottom, bright lighting, good filtration, and a protein skimmer. Your clownfish should be stress free, which means no aggressive tank mates and good water quality. As for feeding, clownfish need a mixed diet of fresh raw seafood and vegetables. A good diet includes prawns, mussels, and squid. It is best to feed small bits at regular intervals.

Spanning can begin 1 to 12 months after the fish have settled into their new home. When the fish are ready to spawn, they become very aggressive. The male clownfish will dance up and down in front of the female (also known as "clownfish waggle"). They will also start to clean their selected rock by robustly biting it. The spawning itself usually occurs in the afternoon or early evening. Once the spawning is complete (within several hours) the male takes on responsibility for attending the eggs, whereas the female acts as protector of the eggs and supervisor of her male.
Spawning is likely to occur again at intervals of 12 to 18 days. The eggs should be left in the care of the parents and not removed, unless the parents are known to be egg eaters. At first, the eggs are a bright orange colour, but after several days this diminishes and the eyes appear. Hatching usually takes from 6 to 15 days, depending on temperature.

The most critical stage of the fry is the first 10 days of their larvae span. If you can get your fry to survive this period, the rest of their raising should be easier.

Ed Katuska NAS First published in Wet Pet Gazette,
Norwalk Aquarium Society

Fish for Ponds & Water Gardens

Although goldfish or Koi are usually the choice for outdoor pond set-ups, there are many other fish that do well outdoors as well. A few years back, I had a good sized piece of liner left over from a larger pond in the yard so I decided to set up a few small above ground ponds using some old whiskey barrels sawn in half. Constructing these small ponds was an easy task; the hard part was figuring what type of aquatic creatures to house in them. The enclosures were much too small to house any variety of goldfish or Koi.

Purchasing small ones would have been an option, but they would have outgrown the habitat in no time. After a few days I decided to try some anabantoids which worked out very well. The barrel was filtered with a large sponge filter powered by a small air pump. The air pump flow was set to minimum so the surface of the water was on the calmer side. A small amount of duckweed was added along with some small water lettuce plants from the larger pond. It was a perfect gourami set-up, still water, floating plants for hiding and plenty of mosquitoes and other small insects to feast on.

Now keep in mind these fish in a large in ground or above groun water garden cannot withstand a winter's freeze like the goldfish. Be prepared to house them inside for the winter. Another main difference compared to goldfish is that these fish are not highly visible in the pond like goldfish are. Goldfish, in my opinion, have a great personality and are a pleasure to feed by hand. Due to their size and vibrant coloration, they are easily seen in the pond; do not expect this with smaller species. For this reason, I decided to keep goldfish in the large pond and house the other fish just in the smaller barrels. The last few years I have been keeping many different species outdoors in the summer months. They are usually put out in the end of May and brought indoors around early September. Do not put the ponds in areas that receive sunlight all day. The enclosures will become too warm in the afternoon sun and the fish will perish. I have placed the barrels in an area that gets sunlight for a couple of hours in

Macropodus concolor – The black paradise fish is a perfect fish for the water garden. The same holds true for the blue paradise fish, ***Macropodus opercularis***, and their anabantoid cousin, ***Betta splendens***.

the morning and shade takes over for the remainder of the day. This takes the night chill away and won't overheat the fish. If you use plants that do not demand a lot of sunlight, they will thrive as well.

How cold the temperature gets on a normal summer night in your area will be a factor in choosing good pond inhabitants. Here in southern New England, the nightly temps stay warm enough not to lower the temperature of the water to any great degree. Fishes that have a low tolerance to temperature change, like angelfish or many of the South American tetras for example, should not be considered for this kind of environment.

Let's go over some of the species that I have found did well outdoors:

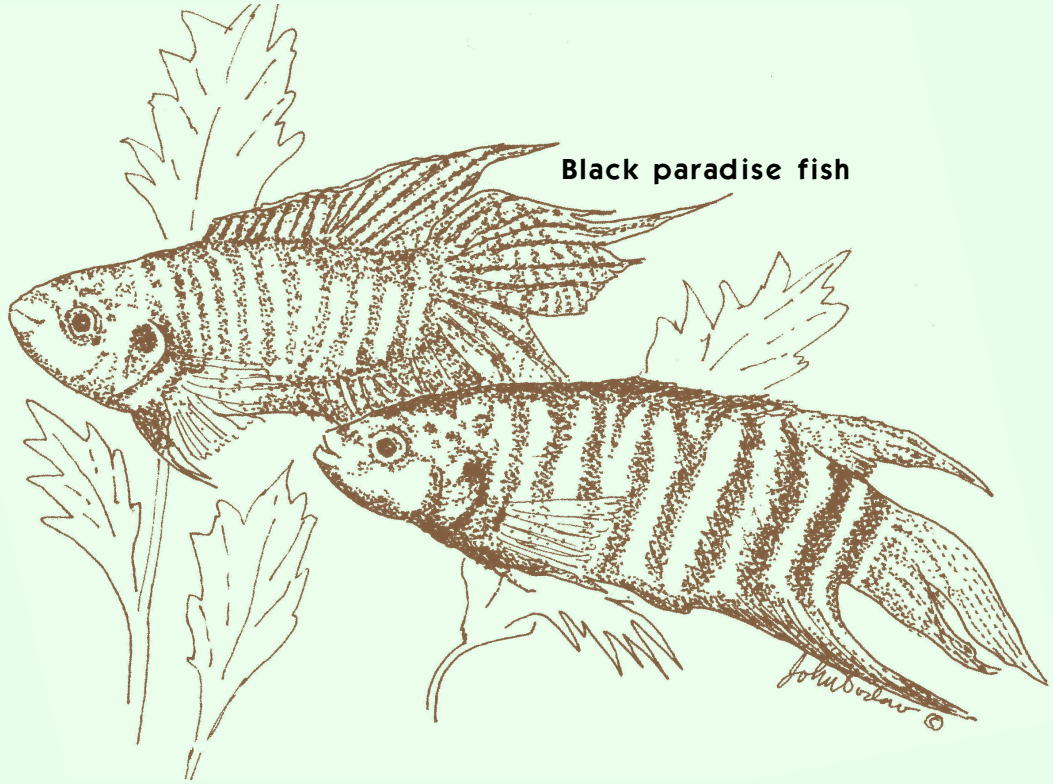
Gambusia affinis - A native livebearer which thrives in an outdoor environment. Any of the "mosquito fish" livebearers are good choices since they relish mosquitoes and other small insects. It's a trip back to nature for them.

Tanichthys albonubes - The white cloud in nature is a cold water mountain minnow that is right at home outdoors. A schooling colony of six or eight males and females is a starter culture for life. If the conditions permit these guys will reproduce like nothing you have ever seen.

Jordanella floridae - The Florida flag fish, a native killie, is an attractive and hardy fish that will do well. These fish do well in a small environment that has some surface area for them to move around. An inexpensive child's pool would suit these guys nicely. There are thirty-six varieties of native killies in the U.S. Most would more than likely do well in this environment

Cyprinella lutrensis - The rainbow dace is a colorful native cold water fish that will do well if the right conditions are provided. The temperature of the water cannot get too high for these fish. The enclosure should be shaded, with extra oxygen added to the water by air pumps. A small pump or powerhead at the bottom will help keep the water moving providing more oxygen as well.

Misgurnus fossilis - The weather loach is an unusual species to say the least. Not the most attractive looking fish, but enjoyable to keep. They will eat insects, but I also add bloodworms to their diet as well.



Black paradise fish

Hemichromis bimaculatus - The West African jewel cichlid is the only fish in the *Cichlidae* family that I have experimented with outdoors. These fish did very well, grew out fast and also spawned. I thought they were colorful fish when they went outside, when they came back in a few months later, the colors were striking to say the least. A very aggressive but beautiful fish.

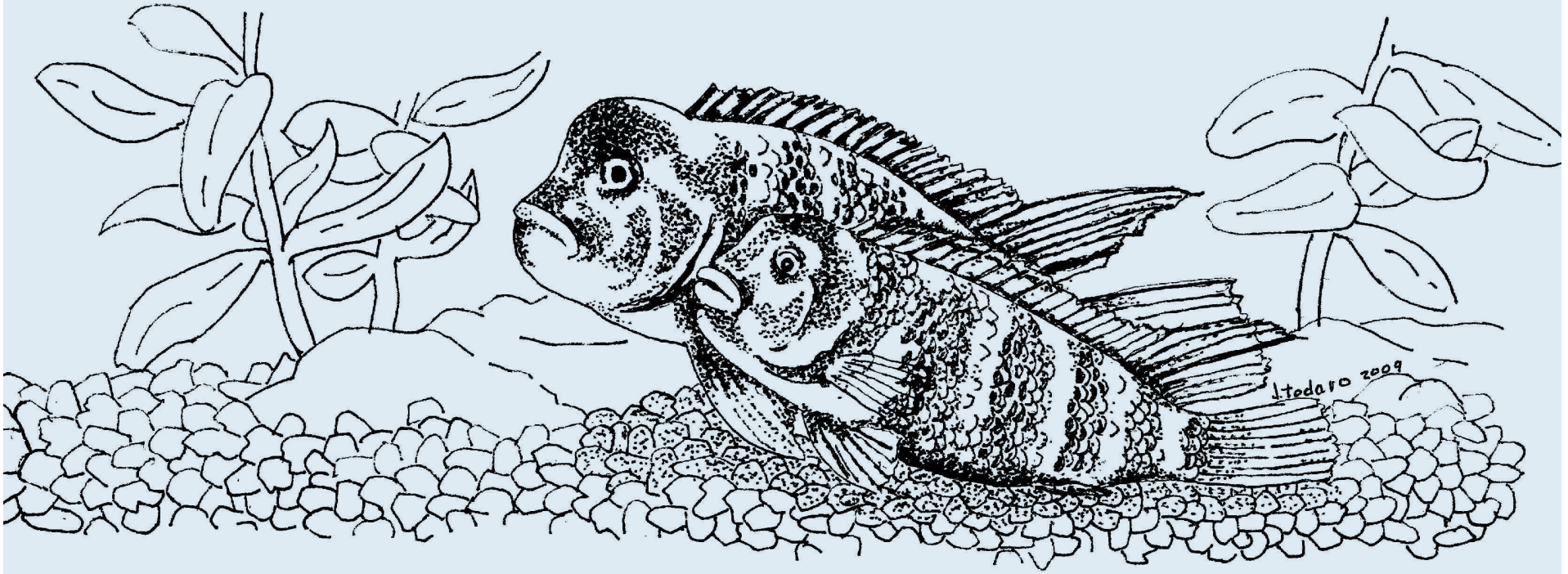
Macropodus concolor - The black paradise fish is a perfect fish for the water garden. The same holds true for the blue paradise fish, *Macropodus opercularis*, and their anabantoid cousin, *Betta splendens*. Care should be taken if putting pairs together in a small environment. The females should be conditioned well before entering the pond with the male and she should have plenty of brush as cover. Anabantoids spawn easily outdoors, so keep a close watch on the enclosure for spawning activity. The males will build a large bubblenest on the surface of the water, and the eggs will be clearly visible. At this point, it is my recommendation to remove the female or the male will certainly victimize her. To ensure a successful spawn, remove the male at the first sight of free-swimming fry.

The species above have worked out well for me in the past. I am undecided thus far on what to try this coming season. Keep in mind that some of the fish listed are jumpers. Some of my smaller water gardens are covered. You can make covers easily out of black nylon screen or that plastic wafer material used for florescent lighting. The latter works well if you have a problem with predatory birds or cats. They allow air and sunlight in and keep unwanted guests out. Also do not rely solely on nature to feed these fish well enough. Feed daily with commercial foods as if they were inside.

Water changes are also essential, twenty to thirty percent weekly is normally recommended, or your fish will suffer. Spring is here so get outside, enjoy the weather, and bring some of your fishy friends with you.

John Todaro – BAS

HOME, HOME ON THE RANGE WHERE THE BUFFALO ROAM...



Buffalo Head Cichlids are not often seen in aquarium stores. So when I saw them up for auction at the NEC Convention this past March I bid and won a small "herd" of this most interesting cichlid species.

A native of swift moving streams and rivers in Zaire, this species is monogamous; if one of the partners dies, the other will not pair up again and often will decline and die. It is best when trying to breed *S. casuarius* to acquire a group of juveniles with the hope they will pair off naturally.

They are best kept in a 30 gallon tank with plenty of rock work and/or overturned flower pots forming caves for them to hide in.

The gravel should be medium sized and the tank should be heavily planted. Placing a powerhead at one end of the tank will help simulate the rapid flow of water in their natural habitat.

Once the fish have become sexually mature about 2 to 3 inches, they will pair off and will dig out a cave under a rock or settle in a over-turned flower pot where they will spawn. The fry will hatch out after about a week, and the fry will be free swimming in another couple of days. They will accept crushed flake food and brine shrimp nauplii.

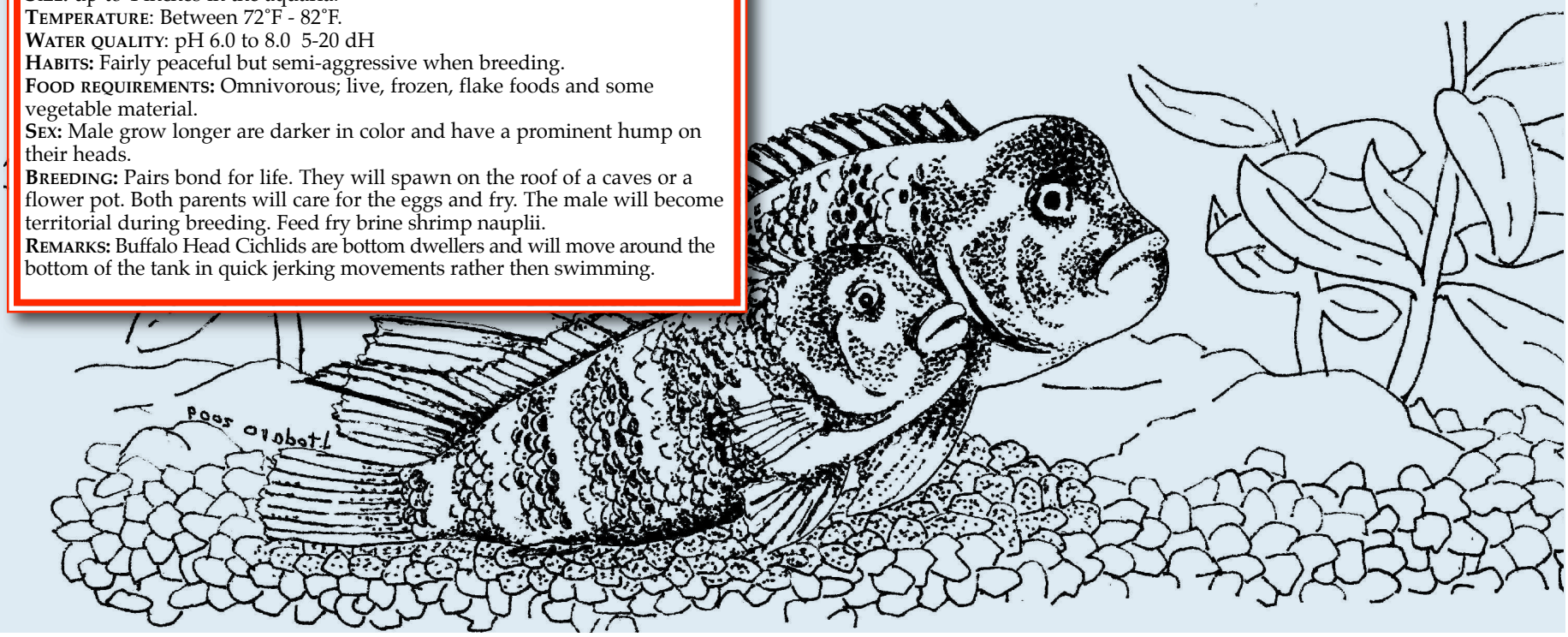
If you come across a "herd" of young Buffalos at a society auction or at a local store, round up as many as you can afford, and watch them grow, pair off and, if you are lucky, become excellent parents who will carefully watch over their baby Buffalos until they spawn again.

The fry grow quickly if fed live foods.

Refrences:

- Myfishtank.net
- FishProfiles.com
- *The Encyclopedia of Freshwater Tropical Fishes*, Expanded Edition, H. Axelrod TFH, 1996
- *Tropical Aquarium Fish*, Dr. Ulrich Baensch Tetra Press, 1983

Family: *Cichlidae*
Scientific name: *Steatocranus casuarius*
Common name: Buffalo Head Cichlid, Humphead, Lionhead Cichlid
Region: Native to Africa. Fast flowing rivers & creeks in Zaire
Size: up to 4 inches in the aquaria.
Temperature: Between 72˚F - 82˚F.
Water quality: pH 6.0 to 8.0 5-20 dH
Habits: Fairly peaceful but semi-aggressive when breeding.
Food requirements: Omnivorous; live, frozen, flake foods and some vegetable material.
Sex: Male grow longer are darker in color and have a prominent hump on their heads.
Breeding: Pairs bond for life. They will spawn on the roof of a caves or a flower pot. Both parents will care for the eggs and fry. The male will become territorial during breeding. Feed fry brine shrimp nauplii.
Remarks: Buffalo Head Cichlids are bottom dwellers and will move around the bottom of the tank in quick jerking movements rather then swimming.



[Editors Note:] While surfing the net, I came across a site dedicated to freshwater dwarf shrimp. ArizonaInverts.com. There's a growing interest among the members for keeping these fascinating invertebrates, and this site is full of information about keeping these creatures in the home aquarium.

I contacted **Bill Southern** and received permission to reprint one of the many articles on the site. I chose one on keeping Red Cherry Shrimp since it's one of the easiest and most prolific of the dwarf freshwater shrimps for the beginner to keep. At the end of the article, I have included more information about the site and suggestions on where you can obtain dwarf freshwater shrimp.

Bill Southern - ArizonaInverts.com.

Red Cherry Shrimp

Neocaridina heteropoda (var. red)

The Red Cherry or RCS is one of the hardiest and easiest to keep of the freshwater dwarf shrimp currently on the market and a great shrimp for beginners. This is the second shrimp species I kept and started my colony just over a year ago now and I would say there are over 100 shrimp in my 20 gallon long aquarium right now. I started out with about 30 shrimp and by maintaining clean water with proper parameters as shown below, I soon had several berried females and began seeing young within 4 weeks. I started with young shrimp since they ship and acclimate to a new tank better than adults.

Red Cherry Shrimp are wonderful little shrimp and stay quite active in your tank all the time when healthy and the water is to their liking. The females will show a bright yellow saddle when they begin to reach sexual maturity. After mating, the female will carry the bright yellow eggs under her tail until they hatch, which usually takes from 14 to 21 days depending on water temperature and conditions. The young are born as 2 to 3mm versions of the adults and often can be seen clinging to the aquarium glass feeding on bio-film.

Temperature	70 to 80 degrees F.
pH	wide range 6.8 to 8.0 , best around 7.4.to 7.6
Origin	wild form southern Southern China, red form bred in Taiwan
Breeding info	fairly easy to breed, young have no larval stage
Food	algae foods, regular fish food pellet and flake
Size	3/4 inch to 1 inch as a rule
Difficulty	Easy and a good "starter" shrimp
Compatibility	Non-aggressive, but should not be kept with any other *Neocaridina* sp. as they may cross breed
Remarks	The red color has been bred from wild *N. heteropoda*, a native of Southern Asia. The red coloring does not occur in the wild.

The chart is a guideline only. These shrimp are very adaptable and will survive in much cooler water with lower or higher pH than shown, but the parameters shown are recommended for best health and color as well as breeding. As young, your Red Cherry Shrimp show very little color, but as they mature the females will become a brilliant red while the males, although not colorless, stay somewhat clear with a red tint and are smaller than the females.

Keeping these shrimp happy and healthy is as easy as keeping the water very clean. Using a sponge filter or keeping a sponge pre-filter over your canister or hang on the back filter is recommended to keep baby shrimp from being sucked into the filter. The young are not much more than 3 mm long at birth and easily sucked into your average filter.

As with all Dwarf Shrimp, it is recommended they be kept in a shrimp only tank as most fish eat the young shrimp, yes even guppies - and the shrimp will be much more active when not worried about being eaten.

Like other Dwarf Shrimp, the Cherry Shrimp's main natural food source is bio-film and a well matured tank with leaf litter and moss or other slow growing plants will naturally produce enough on its own to support a small population. This bio-film is also very important to the young shrimp, especially for the first few days after birth. RCS will also eat all sorts of prepared shrimp, crab, and fish foods, but care must be taken not to over feed, as uneaten food may foul the water and even cause death. Cooked spinach and broccoli are also used to feed shrimp and they love it.

My Red Cherry Shrimp are tank raised by me and kept in excellent health and I do have some available for purchase from time to time. I prefer to sell only juvenile shrimp from 1/4 to 1/2 inch long because they ship and adapt to your tank's parameters better and will live a longer life than if you are sent adults that you have no clue as to age. RCS live from 1 to 1.5 years on average, so getting youngsters is a good idea.

Please check my AZ Inverts Store for availability.

John Todaro - BAS

More About ArizonaInverts.com & Other Information On Buying & Keeping Freshwater Dwarf Shrimp

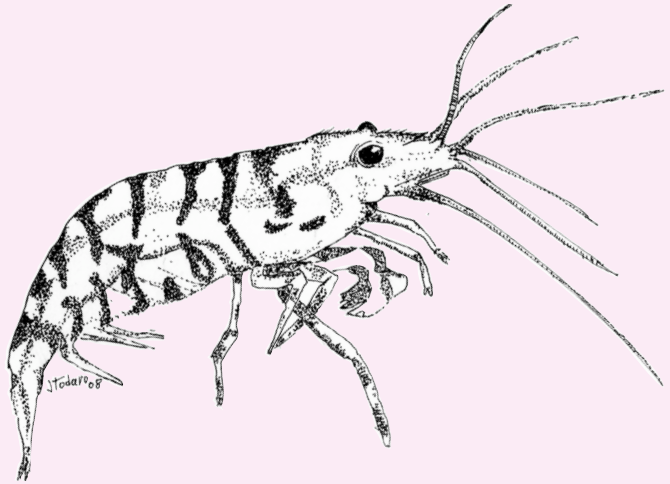
A gathering of Red Cherry Shrimp enjoying dinner in one of Bill's all shrimp tanks.
www.ArizonaInverts.com

ArizonaInverts.com is a site dedicated to Freshwater Dwarf Shrimp for your home aquarium, as well as other interesting freshwater invertebrates like Crayfish, Snails and Crabs. **Bill Southen** has been keeping, raising, and breeding Freshwater Dwarf Shrimp for about 2 years and has successfully kept 16 different species of these fascinating little creatures.

He got started by happening upon Freshwater Shrimp at a local pet store. The store had "Ghost Shrimp" which he learned later was a generic name used by sellers for any clear bodied shrimp and many times it will be the American Glass Shrimp (*Palaemonetes paludosus*). His daughter and he thought they were really cool so he bought some; little did he know what this innocent purchase would lead to...

Bill's site is loaded with information; all you have to do is simply click on the picture of the species you're interested in and you'll be taken to a description page and info on how to care for that particular species with water parameters, etc. clearly listed to help you set up your new aquarium.

More About ArizonaInverts.com & Other Information On Buying & Keeping Freshwater Dwarf Shrimp



MORE SITES ABOUT SHRIMP AND BUYING SHRIMP

The first place I would look is your local pet shop. Many are now carring freshwater shrimp. Some of the shrimp are sold as feeder shrimp. They're used as food for both freshwater water fish and marine fish. These often sell for a dollar or less and are called Ghost shrimp. You'll find Bamboo shrimp *Alyopsis moluccensis*, and Red Cherry shrimp. If you are interested in some of the more exotic shrimp, you can ask them if they will special order a group for you.

If they are not able to do that or you just can't find freshwater shrimp at yoru local shop, here are a few on line places you can order them from.

- FranksAquarium.com is owned by a former member of the BAS, **Frank Greco,** who also works at the NY Aquarium and writes a column for *NY Tails*. Frank carries an extensive list of freshwater shrimp, crayfish, freshwater crabs plus fish that will get along with your shrimp.

I sent an Email to Frank to ask him to bring a dozen Red Cherry shrimp to the March NEC Convention where I picked them up in good health.

If you have quesitons, ask Frank; he knows his stuff.

Here are a few more sites you might want to check out if you are thinking of becoming a shrimpalcolic:

- TheShrimpFarm.com has some articles and blogs about Dwarf Shrimp. Very informative site.
- AAPENaturalAquariums.com is a planted tank forum, but features shrimp also. Planted tanks make an excellent homes for Shrimp.
- Crustaforum.com. A community of freshwater invert enthusiasts. They have an extensive knowledge base with dozens of articles. They welcome both beginners and experts.
- PetShrimp.com. A great site for information about shrimp.
- AquaticplantCentral.com is another forum with loads of information relating to shrimp and other inverts besides aquatic plants.
- www.PlantedTank.net is another site that features shrimp among other matters relating to planted aquariums.

Some of these sites offer shrimp species for sale and some don't.

To find more Freshwater Dwarf Shrimp sites...just type Freshwater Shrimp in your search engine and up will pop lots of other sites...Enjoy!

SIGN UP NOW FOR THE BEHIND-THE-SCENES TOUR OF ATLANTIS MARINE WORLD ON SATURDAY, JULY 18, 2009

We meet Saturday morning, July 18, at 7:30am at the Home Depot/ Walgreens Shopping Center at East 57 St.& Ave. U. The bus seats 50 and will leave at 8am for a tour of Atlantis Marine World. **Joe Yaiullo**, Director & Co-Founder of AMW & BAS member, will give us a guided behind-the- scenes tour of the Aquarium. You'll be called when we receive your check to confirm your seat. Names will be checked at boarding time Saturday morning.

The cost is $30 per bus seat and admission of $10 per person, with an optional 2-hour boat tour for $20 more.

We expect the trip to fill up quickly, so sign up ASAP. We will serve a complimentary breakfast as we travel to Riverhead. You can eat lunch at AMW's cafeteria or get lunch at a local Riverhead eatery, then go for the 2-hour boat ride or continue enjoying AMW displays.

The bus leaves for the trip back home about 5pm. We should be back in Brooklyn by 8pm.

Questions? Call **Joe Graffagnino** at: 917-922-5108.

Yes sign me/us up for the Atlantis Marine World tour. I have enclose a check for (no cash please)

Make check out to Brooklyn Aquarium Society and mail with this form to -**Aquarium Tour, Joe Graffagnino, 1154 78th Street, Brooklyn New York 11228**

Name_____

Phone_____Membership #_____Number of people going_____

Names: _____ _____

_____ _____ _____

	Number of people	Cost Per Person	Total
☛ Bus & AMW fee $40 →			
☛ Optional: 2 hour boat tour $20 →			

Total amount enclosed

Clip and send this form or a photocopy to the address above. If you need more space for names,use another piece of paper. Don't forget to include your check.

Izzy Zwerin – BAS

The Practical Plant

1 Propagating: *Cladophora aegagrophila*

This is a true oddity sold under the common name of "Moss Balls." They are not mosses but in actuality an algae. It is the only form of algae sold as an aquarium plant. They look like fuzzy green balls. The largest I have ever seen was about the size of a baseball, but usually sold closer in size to a golf ball. The algae can actually grow as a sheet or cushion as well. The only literature I could find claimed that you cannot propagate these things, but it is possible.

Since I thought it couldn't be done, I wasn't even trying but it happened, and I'll tell you how. I have some of these in most of my tanks but the only one that ever reproduced was in a 5 1/2 gallon aquarium housing a few Corydoras catfish. This aquarium is kept at a temperature of 78° F. The water is slightly soft and slightly acidic. I don't use any type of fertilizers or Carbon enrichment in this system.

The filtration is performed by a "Zoo Med 501" canister filter. I had gotten some duckweed in the tank and since my schedule had become somewhat hectic, I had fallen way behind in maintenance. The lighting on this system is fairly strong (18 watt Compact Fluorescent) and the duckweed had grown out of control. In fact, the duckweed had gotten so dense it blocked out nearly all the light. It was really quite dark in this tank; I could barely see inside it. Fortunately, the only other plants in this aquarium were some Dwarf *Anubias* and Java Ferns which were none the worse for the wear. When I finally got around to cleaning this mess up, I discovered a mushroom like protrusion on the surface of the moss ball. These things grow quite slowly, so it took some time for this "mushroom" to put on some size. When I felt comfortable that it was large enough, I just snipped it off. Since none of my other specimens have ever done this before, I believe that it was the extremely low light levels which triggered it. These plants come from the "tidal zone" of large freshwater lakes. I understand that it is the wave motion which gives them their characteristic shape. I found that in my aquarium without this water movement, the new plant did not assume the ball shape but grew into more of a sheet.

Picture: Tropica.com

2 Propagating
Echinodorus latifolius

Echinodorus latifolius is a member of a group of plants commonly known as "Sword Plants." This is a small plant suitable for the foreground zone. It is a native of Costa Rica and Panama. There are three "Sword Plants" that resemble each other, and are commonly confused. The other two are *E. tenellus* and *E. quadricostatus.* The easiest way to distinguish *E. latifolius* from the other two is that it has somewhat narrower leaves.

I obtained a specimen from a club auction. When I first got the plant, I was playing around with breeding some fancy Guppies. I put this plant into one of the female breeding tanks I had set up. This is a small tank, 5 1/2 gallons in size. The substrate I'm using in this tank is Seachems "Onyx Sand." This is an excellent substrate to use, especially in a planted Guppy tank. My tap water normally has a pH of 6.5, and this substrate buffers it up to 7.0. The tap water is quite soft as well, so I use Seachems "equilibrium" to raise my GH up to the 4-6o range. This tank is not heated and the temperature is about 75° F. The filter is just a basic sponge filter. As for lighting, I have a simple 4' fixture with a single fluorescent bulb running over three of these tanks. This works out to about 13 watts per tank, or about 2.5 watts per gallon. It doesn't sound like a lot, but on such a short tank, it is certainly adequate.

Picture: Tropica.com

The *E. latifolius* took quite a while to get established. It spent over a month just sitting there doing nothing. Just as I started to get concerned about it, it started to grow. Initially, it just put out a couple of new leaves, and then a couple of weeks later it really came to life. It started sending out runners and establishing new plantlets. I took some of these plantlets and transferred them into a 25-gallon tank I use to house the male Guppies in. The water parameters are very similar, but the lighting is considerably stronger (Compact Fluorescent, 130 watts total, 5.2 watts/gallon) and the tank is heated and so it's a little warmer (77°F.). The other really significant difference is that my 25-gallon setup is CO2 injected and regularly fertilized. The 5 1/2-gallon setup is not Carbon enriched or receiving any fertilizers.

As expected, the plants grew noticeably faster in the 25-gallon tank. What I did not expect is that in the higher light system the plant seems to grow slightly shorter and denser. It is now in the process of forming a nice carpet across the front of this tank. I have started to give it substrate fertilizer tablets. Most "Sword Plants" are known to be heavy root feeders and this species seems to be no exception. Overall, it seems to be a great little plant that will do well in a "Low Tech" or "High Tech" planted aquaria.

Andy Gordon of England, and **Michelle Stuart** of Ontario Canada
Reprinted, with permission, from their web site Fishtanksandponds.net

The Amazon Biotope Aquarium

INTRODUCTION

A biotope aquarium simply means one that only uses flora and fauna from a single region. These aquaria tend to look very natural and are worth the effort.

The Amazon Biotope Aquarium

The water in the Amazon is soft and acidic and usually highly coloured because of all the humic acid. Much of the light is cut off by overhanging trees, but where the light does penetrate through, there is a rich density of aquatic plants. Those are the wild conditions, but the fish that come from there have also become domesticated over many generations, and because of this they are more accustomed to living in harder and less acidic water than their wild relatives. Quite a high proportion of all the common community fish originally come from this vast region.

CARE

Basic care is exactly the same as any other community aquaria in most regards. Allow the bogwood to color the water slightly - this will give the tank a far more authentic look and will also alter the light spectrum to one that suits the higher plants more than algae.

A careful eye must be kept on the pH, since bogwood has a tendency to cause the pH to drop to dangerous levels. It may be necessary to add something to buffer the water from time to time (Kent pH Stable is ideal). Regular partial water changes of about 20% weekly should be carried out, and the new water should have some trace elements added to it.

YOU WILL NEED

The tank can be of any size, but big is best. Because of using a large amount of real plants, two lighting tubes should be used with reflectors. A power-filter will create good localised water movement. Several large pieces of bogwood are used for the main hard landscaping. Set up the tank with all the equipment and then arrange the bogwood. Try to aim for a tangled effect as though the wood had collected there after drifting downstream. Once you are happy with the arrangements put the plants in place.

FILTRATION

Use an external power filter, mainly for biological and mechanical filtration. No chemical filtration is necessary as this would remove vital trace elements needed for plant growth. Because of the large number of plants, reduce the normal level of filtration and aim to filter the tank's volume of water once every 4 hours.

LIGHTING

Use two or three tubes with spectrums for plant growth. The tubes must be the entire length of the aquarium and they must have properly made reflectors. This seems like a lot of light, but without it the plants will fail regardless of what else you do.

Water Conditions
Temp. - 74°F to 78°F.
pH - 6.0 to 7.0
GH - 3 to 7
KH - 2 to 4
Ammonia/Nitrite - no trace
Nitrate - < 10ppm

FEEDING

All the fish will thrive on a diet of flake and live or frozen food. The bristle-nose catfish will also keep any algae at bay.

The herbivores will generally leave the plants alone if they are fed with -

- Lettuce
- Cooked peas without their skin
- Algae pellets/wafers
- Sliced cucumber

Omnivores will require flake food and some live or frozen food two or three times per week.

All the following plants will do well:

- *Echinodorus amazonicus*
- Dwarf sword plant (*Echinodorus tenellus*)
- Hair grass (*Eleocharis acicularis*)
- Amazon sword (*Echinodorus paniculatus*)
- Cabomba
- Myriophyllum

Once planted, the plants should be allowed to settle in for at least one week before the fish are introduced, but longer would be better. There must also be LOTS of plants if they are to out-compete the ever present algae.

THE FISH

There are lots of suitable fish for this tank. Stocking level should be kept reasonably low for the best and most natural effect - try to keep to just one third of the normal stocking density. Almost all of the small tetras

- Hatchetfish
- Pencilfish
- Larger characins (such as silver dollars)
- Bristle-nose catfish.
- Whiptail catfish
- Angelfish (but not with small tetras)
- Discus (need a high temp. and the plants may not thrive)
- Corydoras catfish
- Dwarf cichlids

Vinny Babino - BAS

Exchange Editor's Report

First off I would like to wish **Rosario LaCorte** a speedy recovery from all of us at the Brooklyn Aquarium Society. Get well soon, my friend; we have so much to learn from you. Come back soon. If you need help with the fish call me. I'm not worthy, but call.

• New Hampshire Aquarium Society, *The Granite Fisher,* Vol. 18 #3 March 2009, **Nick Spinelli** has a nice article on resealing an old aquarium. He has a step-by-step way to take an old ugly leaker and put it back to work. A nice way to save a tank, and some money.

• North Jersey Aquarium Society, *Reporter,* March 2009. In February the members of the club all came out to help benefit the family of a long time member **John O'Malley**, who recently passed away. Over 150 members came out to enjoy a mega auction. Over 200 auction lots went on the block that night with all the proceeds going to help out the family. I did not know John, but was happy to part of it. Nice job guys.

• Honolulu Aquarium Society, *I'A O Hawi'i,* March 2009. **Keita Todoroki** has a nice article on maintaining strong strains of guppies. This came to me just as I started to keep some what I think are nice guppies. Thank you, I see I have a lot of work in store for me. I'm still trying to talk the club into sending me to one of your meetings.

• Greater Pittsburgh Aquarium Society, *Finformation,* February 2009. I have to say that out of all the society issues I get, I like this one the best.

Guys, you put a lot of work into the *Finformation* and it shows. **Regina Spotti's** article on the egg laying halfbeak was very well put together. I have to find this fish now. I want to try this one. **Leslie Keffer** also has a nice article on the luck she had with the albino *ancistrus*. People tell me that this fish is one of the easiest fish to work with. Well, not for me. I have never had luck with this one. Leslie, now I'll give it another try.

• For all you fish nuts out there, we have the **Blue Zoo Radio Show.**

It's on Monday nights. Or you can catch all the shows on the BAS web site. It is a show dedicated to each and every aquarist making a difference in the hobby. Blue Zoo Radio features interviews with industry leaders, best selling authors, manufacturers, fish clubs and other hobbyists. **Frank Reece** is one nice guy too. If you email him with a question or a comment, he will get back to you.

If you're interested in reading any of these articles, contact Vinny at a meeting or call him at 718-298-5978. There is a small copying fee of 25¢ per page, plus postage if articles are mailed. No postage if you pick up the article at a meeting.

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"C" The Jungle Pet Store located in the heart of Brooklyn carries a full line of pet supplies, tropical fish, birds, and small animals. They also offer a 10% discount to BAS members with a current membership card. Stop in and see what new livestock has arrived. **"C" The Jungle Pet Store**
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Pacific Aquarium & Pet Inc., in Manhattan's Chinatown, carries ornamental goldfish, koi, freshwater fish, & aquatic plants. BAS members get 10% discount with current membership card (Discounts not to be combined with other specials). They have a full line of aquarium supplies, and you can order custom size tanks.

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Brooklyn Zoo & Aquarium Inc. is a classic pet shop. They have a full line of aquarium supplies, freshwater, marine fish and corals and offer a 10% discount to BAS members with presention of a current membership card. Some restrictions apply.

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Pet Shanty. Family owned & operated; stocks 3 rooms of freshwater fish & 1 of marine fish & corals. They stock a vast list of fish which is posted on line at http://petshanty.com. They also carry other pets and pet supplies. You've got to check them out; they probably have the fish or corals you want.

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2009/2010

Membership Application Brooklyn Aquarium Society

Meetings are held at the NY Aquarium Education Hall on the 2nd Friday of the month at 7:30pm. Knowledgeable speakers on fish care and culture, door prizes, raffles, and fish auctions. All meetings are free to members.
Visit us on line: BROOKLYNAQUARIUMSOCIETY.ORG

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1yr. $20	2yr. $36	3yr. $51	4yr. $68	1yr. $25	2yr. $45	3yr. $63	4yr. $85

[ ] $15 STUDENT 1YEAR (UNDER 18 YEARS)

*If family membership, please list all family members. **Only first two listed will have voting rights.**

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Number of tanks [ ] marine [ ] freshwater [ ] Do you breed fish? [yes] [no]

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Special interest (if any)_____

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How did you hear about BAS?_____
[friend] [dealer] [flyer] [Aquatica] [mag ad] [online] **other**_____

To volunteer check [yes] [no] *A board member will get in touch with you if you check yes.*

On occasion the Brooklyn Aquarium Society uses its mailing list to send notices of interest to our members. If you **DO NOT** wish to receive these mailings please check here [ ]

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